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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,311	07/30/2003	Marc A. Viredaz	200208136-1	3682

7590 09/22/2004

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EXAMINER	
WALLING, MEAGAN S	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/632,311	VIREDAZ ET AL.	
	Examiner	Art Unit	
	Meagan S Walling	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14-20* is/are allowed.

6)☐ Claim(s) *1-4,6,8-10,21-24, and 26- 28* is/are rejected.

7)☒ Claim(s) *5,7,11-13,25 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *07302003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 2, 4, 8, 10, 21, 22, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Bodas (US 2003/0115000).

Regarding claim 1, Bodas teaches determining a workload within the data center (see paragraph 24), determining the amount of heat being generated as a function of the workload (see paragraph 2); and activating a plurality of different types of cooling resources within the data center in an optimal fashion based on the heat being generated (see paragraph 5).

Regarding claim 2, Bodas teaches that the optimal fashion is based on a cost associated with the activation of each of the plurality of different cooling resources (see paragraph 25).

Regarding claim 4, Bodas teaches that the amount of heat being generated is a function of an amount of power being consumed by the data center (see paragraph 2).

Regarding claim 8, Bodas teaches means for determining a workload within the data center (see paragraph 24); means for determining an amount of heat being generated as a function of the workload (see paragraph 2); and means for activating each of a plurality of different types of cooling resources coupled within the data center in an optimal fashion based on the amount of heat being generated (see paragraph 5).

Regarding claim 10, Bodas teaches that the amount of heat being generated is a function of an amount of power being consumed by the data center (see paragraph 2).

Regarding claim 21, Bodas teaches determining a workload within the global computer system (see paragraph 24); determining an amount of heat being generated as a function of the workload (see paragraph 2); and activating each of a plurality of different types of cooling resources coupled to the global computer system in an optimal fashion based on the amount of heat being generated (see paragraph 5).

Regarding claim 22, Bodas teaches that the optimal fashion is based on a cost associated with the activation of each of the plurality of different cooling resources (see paragraph 25).

Regarding claim 26, Bodas teaches determining logic for determining a workload within the data center (see paragraph 24); and determining an amount of heat being generated as a function of the workload (see paragraph 2); and activation logic for activating each of a plurality of different types of cooling resources within the data center in an optimal fashion based on the amount of heat being generated (see paragraph 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3, 9, 23, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bodas in view of Du et al. (US 6,198,245).

Bodas teaches all of the limitations of claims 3, 9, 23, and 27 except the limitation of deactivating one or more of the activated plurality of different types of cooling resources within the data center based on a reduction in the amount of power being consumed by the workload.

Du et al. teaches reducing cooling to conserve electrical power following a reduction in electrical power consumption (column 7, lines 17-19).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Du et al. with the teachings of Bodas to reduce cooling after the reduction in power. The motivation for making this combination would be to conserve electrical power by eliminating extra power needed for cooling (Du et al., column 7, lines 17-19).

3. Claims 6, 24, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bodas in view of Carlstedt (US 5,404,270).

Bodas teaches everything claimed in claims 6, 24, and 28 except that the plurality of cooling resources comprises an air-based cooling resource, a liquid-based cooling resource, and a gas-based cooling resource.

Carlstedt teaches cooling a computer system using both air and liquid (see column 2, lines 9-10).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Carlstedt with the teachings of Bodas to use air and liquid to cool the data center. The motivation for making this combination would be to cool efficiently using the lease expensive means possible. For example, cooling using a fan is inadequate for cooling

electronics with a high component density (Carlstedt, column 2, lines 16-48), but it's inexpensive, so it should be used when possible.

Allowable Subject Matter

4. Claims 5, 7, 11-13, 25, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of allowability of claims 5 and 11 is the inclusion of the limitation that the cooling resources has a cooling capability wherein the cooling capability is a function of an amount of heat that can be removed by the cooling resource and the act of activating each of a plurality of different cooling resources in an optimal fashion further comprises: activating each of a plurality of different resources based on the amount of heat that can be removed by each of the plurality of cooling resources. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claims 7, 12, 25, and 29 is the inclusion of the limitation of activating the air-based cooling resourced before the liquid-based cooling resource and the gas-based cooling resource; and activating the liquid-based cooling resource before the gas-based cooling resource. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

5. Claims 14-20 are allowed.

The following is an examiner's statement of reasons for allowance: The primary reason for the allowance of claim 14 is the inclusion of the limitation of a global computer system; a plurality of different cooling resources coupled to the global computer system; and a cooling resource control module coupled to the global computer system and the plurality of different cooling resources wherein the cooling resource control module includes logic for: determining a workload within the global computer system; determining an amount of heat being generated as a function of the workload; and activating each of a plurality of different types of cooling resources coupled to the global computer system in an optimal fashion based on the amount of heat being generated. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan S Walling whose telephone number is (571) 272-2283. The examiner can normally be reached on Monday through Friday 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

msw

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